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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/810,213

03/26/2004

Koji Sakai

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EXAMINER

SAMS, MATTHEW C

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

07/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/810,213

Applicant(s)

SAKAI ET AL.

Examiner

Matthew C. Sams

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau. (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/8/2007 has been entered.
2. Claims 6 & 7 have been added.

Information Disclosure Statement

3. The information disclosure statement filed on 6/8/2007 has been considered.

Response to Arguments

4. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2617

6. Claims 1, 2, 4 & 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-50735 (hereinafter, JP735) in view of Nikko Ind. Corp. (2000-192939 hereinafter, Nikko).

Regarding claim 1, JP735 teaches a folding mechanism (Fig. 3 [a-d]) comprising:

a fixed member (Fig. 1 [3]) having a plurality of fixed cams disposed on a side face of the fixed member; (Fig. 1 [32 & 34])

a movable member (Fig. 1 [6 & 9]) arranged for rotation with respect to the fixed member having a plurality of movable cams disposed on a side face of the movable member in confronting relation with the fixed cams (Fig. 1 [61 & 91]), the movable cam being formed of a protruded portion and sloped portions extended to the left and right; (Fig. 2A-2D) and

a spring for urging the movable member or the fixed member such that the movable cams and the fixed cams are brought into resilient contact with each other; (Fig. 1 [4 & 7])

wherein a first set of the movable and fixed cams form an inner camming unit (Fig. 1 [6 & 34]), and

a second set of the movable and fixed cams form an outer camming unit positioned circumferentially around the inner camming unit. (Fig. 1 [9 & 32])

JP735 differs from the claimed invention by not explicitly reciting the movable member and the plurality of movable cams are formed solidly and wherein, at a position that the movable cam opens over 180° from the closed position, the fixed cam is held in

resilient contact with the sloped portion of the movable cam so the a further force is applied to open the movable cam.

In an analogous art, Nikko teaches the movable member and the plurality of cams are formed solidly (Fig. 1 [17] and Fig. 2 [22 & 23]) and wherein, at a position that the movable cam opens over 180° from the closed position (Fig. 5 [36 & 37] and [56 & 57] *i.e.* 180°), the fixed cam is held in resilient contact with the sloped portion of the movable cam so the a further force is applied to open the movable cam. (Fig. 7 [37 & 57]) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the hinge of JP735 after modifying it to incorporate the solidly formed movable member and the plurality of cams of Nikko. One of ordinary skill in the art would have been motivated to do this since having the pieces formed solidly simplifies and quickens the assembly process by eliminating an assembly step.

Regarding claim 2, JP735 in view of Nikko teaches the folding mechanism according to claim 1 wherein the plurality of fixed cams and movable cams disposed on the outer circumferential side and on the inner circumferential side are each disposed in symmetrical positions with each other. (JP735 Pages 2-3 [0010-0013] and Fig. 1 [61a's & 91a's opposite of 34 & 32a's])

Regarding claim 4, JP735 in view of Nikko teaches the inner and outer camming units are disposed on the fixed and movable members at respective inner and outer circumferential portions thereof such that each respective movable or fixed cam is disposed on one of the inner circumferential portion or the outer circumferential portion. (JP735 Pages 2-3 [0010-0013] and Fig. 1 [61a's & 91a's opposite of 34 & 32a's])

Regarding claim 6, JP735 in view of Nikko teaches each of the plurality of movable cams is rotatable more than 180° within a circumference without reaching a maximum height of said respective fixed cams within said circumference. (Nikko Fig. 7 [0°-360°])

7. Claims 3, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP735 in view of Nikko and Nagashima (US-6,658,111).

Regarding claim 3, JP735 teaches an electronic apparatus (Page 2 [0008]) comprising:

a folding mechanism (Fig. 1 [1]) which comprises a fixed member (Fig. 1 [3]) having a plurality of fixed cams disposed on a side face of the fixed member (Fig. 1 [32 & 34]), a movable member (Fig. 1 [6 & 9] and Pages 3-4 [0018]) arranged for rotation with respect to the fixed member having a plurality of movable cams disposed on a side face of the movable member in confronting relation with the fixed cams (Fig. 1 [6 & 34, 9 & 32] and Pages 2-4 [0011-0021]), the movable cam being formed of a protruded portion and sloped portions extended to the left and right (Fig. 2A-2D), and a spring for urging the movable member or the fixed member so that the movable cams and the fixed cams are brought into resilient contact with each other; (Fig. 1 [4 & 7])

wherein a first set of the movable and fixed cams form an inner camming unit (Fig. 1 [6 & 34]), and a second set of the movable and fixed cams form an outer camming unit positioned circumferentially around the inner camming unit; (Fig. 1 [9 & 32])

a fixed housing (Fig. 3 [11]), a movable housing (Fig. 3 [12]) and a fixed member and the movable member are mounted on the fixed housing and the movable housing, respectively or vice versa. (Fig. 3 and Page 4 [0021-0022]) JP735 differs from the claimed invention by not explicitly reciting the movable member and the plurality of movable cams are formed solidly and wherein, at a position that the movable cam opens over 180° from the closed position, the fixed cam is held in resilient contact with the sloped portion of the movable cam so the a further force is applied to open the movable cam.

In an analogous art, Nikko teaches the movable member and the plurality of cams are formed solidly (Fig. 1 [17] and Fig. 2 [22 & 23]) and wherein, at a position that the movable cam opens over 180° from the closed position (Fig. 5 [36 & 37] and [56 & 57] *i.e.* 180°), the fixed cam is held in resilient contact with the sloped portion of the movable cam so the a further force is applied to open the movable cam. (Fig. 7 [37 & 57]) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the hinge of JP735 after modifying it to incorporate the solidly formed movable member and the plurality of cams of Nikko. One of ordinary skill in the art would have been motivated to do this since having the pieces formed solidly simplifies and quickens the assembly process by eliminating an assembly step.

JP735 in view of Nikko differs from the claimed invention by not explicitly reciting the fixed housing having at least one of an operating portion and a voice input portion disposed on an upper face thereof and a movable housing having at least one of a display portion and a voice output portion (Fig. 3 [3a]) disposed on a surface.

In an analogous art, Nagashima teaches a fixed housing (Fig. 2 [2]) having at least one of an operating portion (Fig. 2 [2b]) and a voice input portion (Fig. 2 [2a]) disposed on an upper face thereof, and a movable housing (Fig. 2 [3]) having at least one of a display portion (Fig. 2 [3b]) and a voice output portion (Fig. 3 [3a]) disposed on a surface, wherein the fixed member and the movable member are mounted on the fixed housing and the movable housing, respectively or vice versa. (Fig. 2 [4] and Col. 3 lines 7-25) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the hinge mechanism of JP735 in view of Nikko after modifying it to incorporate the specific cellular component layout of Nagashima. One of ordinary skill in the art would have been motivated to do this since the specific components of the cellular phone are not covered within the scope of the JP735 and Nikko documents, but a common configuration is taught within the Nagashima patent.

Regarding claim 5, JP735 in view of Nikko and Nagashima teaches the inner and outer camming units are disposed on the fixed and movable members at respective inner and outer circumferential portions thereof such that each respective movable or fixed cam is disposed on one of the inner circumferential portion or the outer circumferential portion. (JP735 Pages 2-3 [0010-0013] and Fig. 1 [61a's & 91a's opposite of 34 & 32a's])

Regarding claim 7, JP735 in view of Nikko teaches each of the plurality of movable cams is rotatable more than 180° within a circumference without reaching a maximum height of said respective fixed cams within said circumference. (Nikko Fig. 7 [0°-360°])

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Sams whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571)272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MCS
6/21/2007


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SUPERVISORY PRIMARY EXAMINER